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(54) **METHODS AND SYSTEMS FOR ACCESSING A PERICARDIAL SPACE AND PREVENTING STROKES ARISING FROM THE LEFT ATRIAL APPENDAGE**

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(57) **ABSTRACT**

The invention presents methods and systems for accessing a pericardial space and preventing strokes arising from a left atrial appendage ("LAA") by achieving a complete occlusion of the LAA using an epicardial approach without creating a puckering of the LAA ostium. A complete occlusion of the LAA is desired because blood clots arising from the LAA often leads to embolic strokes. Due to the peculiar anatomy of the LAA ostium, traditional LAA ligation techniques using sutures can lead to puckering, thus compromising the occlusion of the LAA. The invention achieves a complete occlusion and a more effective hemostatic seal with the use of inflatable balloons having electromagnetic coils internally, as well as hydrogels, sponges, and caliber tubes attached to the respective balloon's exterior, anchoring balloons, a closure device having a suture looped through two semi-rigid hollow tube that can be coated with hydrogel or silicone, and locking mechanisms.

20 Claims, 22 Drawing Sheets